MEMORANDUM

SUBJECT: AMENDED DECISION MEMORANDUM: Interagency Agreement (IA) with the United States Geological Survey (USGS)
DW14-92380501

FROM: Cecilia Tapia, Director
Superfund Division

TO: Interagency Agreement Shared Service Center

PROJECT TITLE

Hydrogeology Support for the West Lake Landfill Superfund Site

JUSTIFICATION

The purpose of this Amended Decision Memorandum is to provide funding for additional work to be conducted under the scope of the existing Interagency Agreement. The type and characteristics of the work needed falls under the purview of the United States Geological Survey (USGS). The U.S. Environmental Protection Agency (EPA) considered using existing contracts such as the Region 7 Environmental Collection and Analysis Program, the Architect and Engineering Services (AES) Contract, the Superfund Technical Assessment and Response Team (START) and the Emergency and Rapid Response Services (ERRS). However, due to the nature of the contracts, several of these alternatives were not suitable for the work needed. The AES contract, which was most suited for the project's needs, was weighed against using an IA with the USGS.

Due to the specialized expertise needed to perform the specified tasks, an IA with USGS would be the most effective and cost efficient vehicle to conduct these specified activities. Analysis of site hydrogeology and regional background concentrations of radionuclides requires knowledge and expertise that the AES contractor does not have at their disposal. The costs for the AES contractor to subcontract these activities would cost more than having the activities performed under an IA with USGS.

PURPOSE

Under this amended IA, USGS will continue to provide technical and hydrogeologic support to the EPA at the West Lake Landfill site. USGS will be tasked under this amended IA to perform technical assistance and analytical services for the EPA's on-site groundwater split samples and/or off-site

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MOKS	SUPR	SUPR	SUPR
Gravatt	Rabenau	Jackson	Tapia
01/16/14	1/16/14	for 1/16/14	1/16/14

privately owned well samples for supplemental feasibility studies. These tasks will include document review, data analysis and interpretation, providing expert recommendations, participation in technical meetings and participation in community meetings.

BACKGROUND

The West Lake Landfill site is on a parcel of approximately 200 acres located in the northwestern portion of the St. Louis metropolitan area. It is situated approximately 1 mile north of the intersection of Interstate 70 and Interstate 270 within the limits of the city of Bridgeton in northwestern St. Louis County. The Missouri River lies about 1.5 miles to the north and west of the site.

The site consists of the Bridgeton Sanitary Landfill (Former Active Sanitary Landfill) and several inactive areas with sanitary and demolition fill that have been closed. Land use at the site and the surrounding areas in Earth City is industrial.

Other facilities which are not subject to this response action are located on the 200-acre parcel including concrete and asphalt batch plants, a solid waste transfer station and an automobile repair shop.

The site was used agriculturally until a limestone quarrying and crushing operation began in 1939. The quarrying operation continued until 1988 and resulted in two quarry pits. Beginning in the early 1950s, portions of the quarried areas and adjacent areas were used for landfilling municipal solid waste (MSW), industrial solid wastes and construction/demolition debris. These operations were not subject to state permitting because they occurred prior to the formation of the Missouri Department of Natural Resources (MDNR) in 1974. Two landfill areas were radiologically contaminated in 1973 when they received soil mixed with leached barium sulfate residues.

The barium sulfate residues, containing traces of uranium, thorium and their long-lived daughter products, were some of the uranium ore processing residues initially stored by the Atomic Energy Commission (AEC) on a 21.7-acre tract of land in a then-undeveloped area of north St. Louis County, now known as the St. Louis Airport Site (SLAPS), which is part of the St. Louis Formerly Utilized Sites Remedial Action Program managed by the U.S. Army Corps of Engineers.

Reportedly, 8,700 tons of leached barium sulfate residues were mixed with approximately 39,000 tons of soil and then transported to the site. According to the landfill operator, the soil was used as cover for municipal refuse in routine landfill operations.

The geology of the landfill area consists of Paleozoic-age sedimentary rocks overlying Pre-Cambrian-age igneous and metamorphic rocks. The Paleozoic bedrock is overlain by unconsolidated alluvial and loess deposits of recent (Holocene) age. Alluvial deposits of varying thickness are present beneath Areas 1 and 2. The landfill debris varies in thickness from 5 to 56 feet in Areas 1 and 2, with an average thickness of approximately 30 feet in Area 2. The underlying alluvium increases in thickness from east to west beneath Area 1. The alluvial thickness beneath the southeastern portion of Area 1 is less than 5 feet (bottom elevation of 420 ft/amsl) while the thickness along the northwestern edge of Area 1 is approximately 80 feet (bottom elevation of 370 ft/amsl). The thickness of the alluvial deposits beneath Area 2 is fairly uniform at approximately 100 feet (bottom elevations of 335 ft/amsl).

During the RI investigations, groundwater was generally encountered in the underlying alluvium near or immediately below the base of the landfill debris. Isolated bodies of perched water were encountered in

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

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During the RI investigations, groundwater was generally encountered in the underlying alluvium near or immediately below the base of the landfill debris. Isolated bodies of perched water were encountered in

2 of the 24 soil borings drilled in Areas 1 and 6 of the 40 borings drilled in Area 2 as part of the RI field investigations. The perched water generally occurs in small isolated units at depths varying from 5 to 30 feet below ground surface. Monthly groundwater levels measured in various landfill wells indicate that only a very small amount of relief (less than a foot) exists in the natural alluvial water table surface. The regional direction of groundwater flow is northerly within the Missouri River alluvial valley, parallel or subparallel to the river alignment. However, the leachate collection system for the Former Active Sanitary Landfill creates a localized cone of depression that extends across the eastern half of the site and includes the water table underlying Area 1.

Vertical hydraulic gradients were calculated using piezometer clusters. The vertical hydraulic gradients for the shallow alluvium to intermediate or deep alluvium and for deep alluvium to shallow bedrock are very small and vary from slightly downward to slightly upward.

REQUESTED ACTION

A specific set of work tasks will be performed by USGS to (a) analyze, provide feedback on, interpret and evaluate hydrologic and geochemical data in support of determining uranium, thorium and radium background contaminant levels in groundwater; (b) provide expert recommendations on groundwater hydrology and contaminant issues that may arise during the ongoing Supplemental SFS evaluations and preparation of the subsequent ROD amendment; and (c) provide field support and/or analytical support for on-site groundwater split samples and/or off-site privately owned well samples during future groundwater sampling events through USGS' contract laboratories, if it can be demonstrated that the analytical capabilities of the contract laboratory(ies) are equivalent to those being used by the responsible parties for their radiological analyses.

STATUTORY AUTHORITY

The statutory authority for entering into this IA is section 105(a)(4) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (42 U.S.C. 9601 et seq., Public Law 96-510, December 11, 1980), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499, October 17, 1986) and Executive Order 12580.

FUNDS AVAILABILITY

This amended IA will provide an additional $130,000 to USGS to continue technical and hydrogeological support at the West Lake Landfill Superfund site.

PROJECT PERIOD

The project period for this amended IA action (duration of IA work activity) is March 22, 2013, to December 30, 2015. The total amended IA project period is expected to be March 22, 2013, to December 30, 2015.

PRE-AWARD COSTS

N/A

BUDGET - TRAVEL

I have verified with John Schumacher from USGS that the proposed travel is necessary for the project and the amended IA is not for the purpose of augmenting USGS travel funds.

BUDGET - INDIRECT COSTS

$50,247

BUDGET

Budget Categories	EPA Previous Funding	Current Funding Action	Itemization of Total Project Cost to Date
(a) Personnel	$19,400	$62,333	$81,733
(b) Fringe Benefits			
(c) Travel	$1,523	$1,500	$3,023
(d) Equipment			
(e) Supplies	$4,934	$2,500	$7,434
(f) Procurement/Assistance			
(g) Construction			
(h) Other	$4,184	$13,420	$17,604
(i) Total Direct Charges	$30,041	$79,753	$109,794
(j) Indirect Costs	$19,959	$50,247	$70,206
(k) Total	$50,000	$130,000	$180,000

PAYMENTS

For this disbursement agreement, repayments will be made quarterly.

EQUIPMENT/PROPERTY

USGS and/or its contractors are NOT authorized to purchase personal property/equipment under this amended IA. Title to personal property/equipment acquired totally or in part with the Superfund Trust Fund having an aggregate fair market value of $1,000 or more at the end of the project period, including contractor-acquired equipment, will remain vested with the EPA except for personal property/equipment comprising part of the remedial or response action and necessary for the continued functioning of the response action. In that case, the EPA will relinquish its interest in the personal property/equipment at the time of installation and no reimbursement to the Superfund Trust Fund will be required.

SPECIAL CONDITIONS

Billing/Payment

When requesting payments, a breakdown of the cost associated with the billing request must be provided to the EPA Project Officer. This information should be adequate to allow the EPA Project Officer to determine that costs billed to the EPA are necessary and reasonable. If the information is not provided, the EPA Project Officer will notify the Financial Management Division to suspend or charge back the payment.

Progress Reporting

USGS shall provide a summary of activities that occurred within 30 days of the end of each federal fiscal quarter.

Indirect Cost Rate

The indirect cost rate for the proposed work with USGS is 38.6514 percent.

Superfund Cost Recover Audit

The site will be tracked site specifically with an assigned site spill identifier number. Please refer to the attached Statement of Work (SOW), page 3, Documentation and Accounting.

Compliance with Quality Assurance Guidelines

USGS has submitted a site-specific Quality Assurance Project Plan for the EPA's review and approval. The QAPP the EPA approved on September 26, 2013, remains in effect.

PROJECT OFFICER CERTIFICATION STATUS

Marie Rabenau is a certified EPA IA Project Officer.

HUMAN SUBJECTS

N/A

PROJECT/BUDGET PERIOD AND PERIOD OF FUNDS AVAILABILITY

The budget and project periods will be from March 22, 2013, to December 30, 2015.

FOREIGN ACTIVITIES APPROVAL

N/A

RECOMMENDATION

After reviewing all the information and alternatives, the project team determined that an amended IA with USGS is the most efficient and economical alternative and will provide the highest quality technical support on the West Lake Landfill Superfund site. Therefore, it is in the best interest of the government for USGS to provide the geologic and hydrologic expertise needed to complete the specified tasks for this Superfund site.

Project Manager Signature	**Typed Name and Title**	**Date**
	Daniel R. Gravatt Remedial Project Manager Superfund Division	01/16/2014
Project Officer Signature	**Typed Name and Title**	**Date**
	Marie Rabenau Project Officer Superfund Division	1-16-14
Recommending Signature	**Typed Name and Title**	**Date**
	Jeffrey L. Field, Chief Missouri/Kansas Remedial Branch Superfund Division	1/16/14
Recommending Signature	**Typed Name and Title**	**Date**
Cecilia Tapia for	Robert W. Jackson Deputy Director Superfund Division	1/16/14
Approval Signature	**Typed Name and Title**	**Date**
Cecilia Tapia	Cecilia Tapia Director Superfund Division	1/16/14

Attachment: Statement of Work

AMENDED STATEMENT OF WORK

Continued Technical Support for Groundwater Investigations at the West Lake Landfill Site

1. BACKGROUND INFORMATION

The West Lake Landfill site is on a parcel of approximately 200 acres located in the northwestern portion of the St. Louis metropolitan area. It is situated approximately one mile north of the intersection of Interstate 70 and Interstate 270 within the limits of the city of Bridgeton in northwestern St. Louis County. The Missouri River lies about 1.5 miles to the north and west of the Site.

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Vertical hydraulic gradients were calculated using piezometer clusters. The vertical hydraulic gradients for the shallow alluvium to intermediate or deep alluvium and for deep alluvium to shallow bedrock are very small and vary from slightly downward to slightly upward.

II. OBJECTIVE AND SCOPE

The EPA is requesting continued assistance from USGS to conduct technical support of the supplemental PRP-lead investigations including assisting in scoping investigations, reviewing data and determining background levels of uranium, thorium and radium in groundwater at and surrounding the West Lake Landfill. The technical support may consist of performance of specific tasks which the EPA contractors have neither the expertise or cannot provide at reasonable cost to the EPA.

This work assignment includes continued technical review of documents to provide expert advice, analysis and interpretation on topics such as hydrogeology, geochemistry, water quality, solute transport or groundwater modeling of which USGS has known expertise.

III. WORK ASSIGNMENT TASKS

USGS shall furnish personnel and services required to provide assistance in reviewing, analyzing and interpreting historical data that has been collected by PRPs. This review will assist the EPA in determining data gaps essential to determining background radionuclide concentrations in groundwater at and around the site, identifying the appropriate methodologies for addressing data gaps, reviewing work plans generated for performance of the methodologies, and evaluating the data resulting from field activities. USGS shall provide expert analysis and interpretation of hydrogeologic and geochemical data. Additionally, personnel shall be provided to participate and support the EPA in updating the community of efforts at public events. Finally, USGS may provide field support and/or radiological analytical support for off-site privately owned well sampling and on-site split samples that the EPA may collect during future groundwater sampling events, through USGS' contract laboratories, if it can be demonstrated that the analytical capabilities of the contract laboratory(ies) are equivalent to those being used by the responsible parties for their radiological analyses.

Task 1 Project Planning and Support

This task includes work efforts related to project initiation, management and support. Activities required under this task include the following, as applicable:

1.1 USGS shall participate in a scoping meeting with the EPA to discuss the work assignment.

1.2 USGS shall prepare a work plan of support activities.

1.3 Based on the EPA's review of the work plan, USGS may be called upon to participate in negotiations with the EPA on the work plan and to revise the work plan as a result of these negotiations or comments made regarding the work plan.

1.4 USGS shall prepare, if needed, a Field Sampling Plan (FSP) that describes the number, type, and locations of samples, the type of analyses required, and the method that will be used to collect them.

1.5 USGS shall prepare, if needed, a site-specific Quality Assurance Project Plan (QAPP) in accordance with the EPA QA/R-5. The plan shall describe the data quality objectives and the measures necessary to achieve them.

1.6 USGS shall perform site-specific project management including:

- Establishment and maintenance of necessary work assignment files
- Perform contract administration functions associated with this work assignment
- Provide quarterly reporting and invoices
- Monitor costs and performance
- Coordinate staffing and other support activities to perform the work assignment tasks in accordance with the Statement of Work (SOW) including Team subcontractors and other subcontractors
- Attend necessary work assignment meetings

1.7 USGS shall accommodate any external audit or review mechanism that the EPA may require.

Task 2 Community Relations

USGS staff will attend and participate in technical meetings and community meetings, as requested by the EPA, to help explain USGS interpretations of site data.

Task 3 Field Activities

USGS staff may provide field support for collecting on-site split groundwater samples and/or off-site privately owned well samples as requested by the EPA.

Task 4 Sample Analyses - NA

Task 5 Analytical Support and Data Validation

USGS may provide analytical support for groundwater split samples that the EPA may collect during future groundwater sampling events, through USGS' contract laboratories, if it can be demonstrated that the analytical capabilities of the contract laboratory (ies) are equivalent to those being used by the

responsible parties for their radiological analyses. Previously, the PRP used Eberline Services' Oak Ridge, TN laboratory for their radiological analyses. The EPA's split samples cannot be analyzed at the same lab that is analyzing the PRPs' samples. Analytical methods for radionuclides will include Ra-226 by the EPA method 903.0 MOD (alpha spec), Ra-228 by 904.0 MOD, Th by DOE EML Th-01, and U by DOE EML U-02. Analyses for other contaminants or water quality parameters necessary to interpret the radiological data may also be performed as approved by the EPA.

Task 6 Data Evaluation

This task includes work efforts related to the analysis and interpretation of analytical and field data. The data is to be in a form compatible with the EPA's computer systems so that it can be entered into a Region 7 database. Activities required under this task include the following:

6.1 USGS shall provide technical expertise pertaining to USGS collected and interpreted data (if any) and reviews of hydrologic and geochemical data collected and published by other agencies or companies. Areas of analysis and interpretation are expected to include hydrogeology, geochemistry (including background contaminant concentrations in groundwater), water quality, solute transport, and/or groundwater modeling.

6.2 USGS shall provide their interpretations(s) of the data to the EPA as a USGS letter-type administrative report(s) or letter(s).

Task 7 Assessment of Risks - NA

Task 8 Treatability Study/Pilot Testing - NA

Task 9 Remedial Investigation Report – NA

Task 10 Remedial Alternative Screening - NA

Task 11 Remedial Alternative Evaluations - NA

Task 12 FS Report and RI/FS Report

USGS shall provide technical assistance in the review and evaluation of the PRP's Supplemental Feasibility Study reports and a ROD Amendment, if needed.

Task 13 Post Remedial Action Support - NA

Task 14 Negotiation Support - NA

Task 15 Administrative Records - NA

Task 16 Work Assignment Close Out

This task includes efforts related to work assignment close out. Activities required under this task include the following:

16.1 Upon notification by the EPA, USGS shall begin all internal procedures necessary to close out the work assignment including any file duplication, distribution, storage or archiving per the contract requirements.

16.2 USGS shall return documents identified to the EPA or other document repositories as directed.

IV. WORK ASSIGNMENT PERIOD OF PERFORMANCE

March 22, 2013, to December 30, 2015.

V. SCHEDULE OF DELIVERABLES/MILESTONES

Task 1.6	Quarterly Reports/Invoices	Throughout period
Task 5	Analytical Data Packages	As requested (up to 3 events)
Task 6.1	Data Evaluation	Throughout period
Task 12	Data Evaluation	Throughout period

VI. PEFORMANCE CRITERIA

USGS's deliverables will be inspected by the government for acceptability. Unacceptable deliverables will be returned to USGS with comments and directions for necessary corrections or rework which may be applicable.

VII. ACCEPTANCE CRITERIA

The following are the acceptance criteria for the deliverables under this work assignment.

TASK	DELIVERABLE/SERVICE	CRITERIA
1.6	Quarterly Reports/Invoices	Narrative of specific task and subtask activities sufficient enough for work assignment manager to evaluate the work assignment progress.
5	Analytical Data Package	In accordance with pre-existing EPA QAPP.
6.1	Data Evaluation	Timely, complete and accurate review and evaluation of data results and conclusions.
12	Data Evaluation	Timely, complete and accurate review and evaluation of data results and conclusions.

VIII. EPA CONTACTS

Project Manager	Dan Gravatt	(913) 551-7324
Project Officer	Marie Rabenau	(913) 551-7968